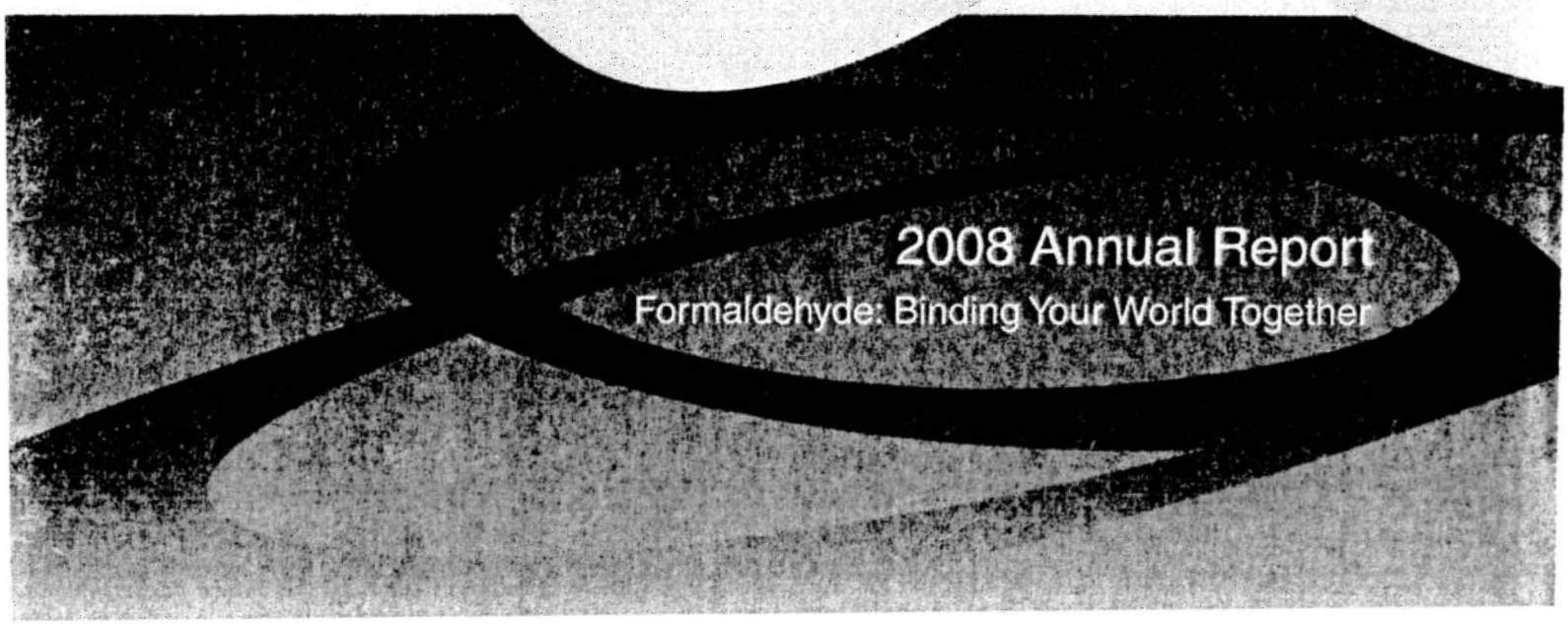
Formaldehyde



2008 Annual Report

Formaldehyde: Binding Your World Together

The Formaldehyde Industry at a Glance

Formaldehyde's chemistry makes it an extremely versatile ingredient used in hundreds of products that contribute to modern living standards. While little or no formaldehyde is present in most final products, the chemical is an essential component in making common consumer items such as vaccines, pharmaceuticals, toothpaste, shampoo, deodorant, anti-bacterial agents in cosmetics and cleaners, furniture, cabinets, insulation and other building products, cars and airplanes to name a few.

Formaldehyde cannot be replaced easily in many consumer and industrial products and end uses. Without formaldehyde as the building block, the performance and value of a broad array of products would suffer, potentially leading to reduced product performance and increased production costs.

Formaldehyde also plays a vital role in the American economy. Studies have shown that in the United States, production of formaldehyde and formaldehyde-containing goods account for more than 5% of the Gross National Product, which exceeds $10 trillion annually. Formaldehyde is essential to operations at nearly 50,000 U.S. facilities in 17 major industries, and it serves as a basic raw material in another 70 industries. Annual U.S. formaldehyde production exceeds 5 million metric tons. Further examples of formaldehyde's economic contributions include:

- More than $145 billion in annual sales come from formaldehyde-based industry activities.
- Nearly 700,000 workers are employed in the formaldehyde industry and downstream manufacturing facilities in the United States and Canada; of these, more than 600,000 jobs are in the United States. Total annual wages for these employees amount to nearly $20 billion.
- An additional 1.8 million workers in the United States and Canada are employed in the network of supplier industries that provide goods and services to the industry. Total annual wages for these workers are approximately $58 million.
- Formaldehyde and derivatives production is carried out in facilities with an aggregate investment value of nearly $90 billion in the United States and Canada.
- Approximately 11,900 formaldehyde and derivative plants operate in the United States and Canada in nearly all states and provinces.
- Almost 60% of formaldehyde's estimated economic benefits are attributed to three major applications -- urea formaldehyde resins (UF), phenol formaldehyde resins (PF), and MDI (methylenebis (4-phenyl isocyanate)). In most cases, consumers would be severely negatively impacted by having to use alternative materials, and large new capital investments would be required to produce or use the substitutes.
- UF resins and PF resins are mainstays in the building and construction industry. Nearly 95% of UF resins are used as a binder or adhesive in particleboard and medium-density fiberboard for composite panels, roofing tiles, hardwood plywood, and coatings. Nearly 75% of PF resins are used in applications such as structural panels, insulation binder and laminates. The majority of MDI is used in the manufacture of rigid polyurethane foams, which are commonly used in construction applications for their superior insulating and mechanical properties. In addition, MDI rigid foam applications include appliances (e.g., refrigerators, freezers and air conditioners), packaging for high-end electronics, and transportation.

Formaldehyde Council, Inc. (FCI) is a group of leading formaldehyde producers and users whose mission is to encourage accurate scientific evaluation of formaldehyde and formaldehyde-based materials and to communicate sound scientific information relating to the uses, benefits and sustainability of these products.

Unless otherwise indicated, statements are taken from The Economic Benefits of Formaldehyde to the United States and Canadian Economies, Global Insight, Lexington, Mass., August 2005.

Contents

Chairman's Letter

Richard Urschel

Chairman of the
Board of Directors

As I conclude my tenure as chairman of the Formaldehyde Council, Inc. (FCI), I wanted to first comment on the recent change in strategic direction made by the organization. I commend our membership and leadership on making advocacy a much higher priority, reflecting FCI's ability to adapt to a changing industry and environment.

As you know, FCI's focus has long been science-based; however in 2008 more funds were allocated for advocacy and communications than ever before in the Council's history. FCI increased the communications budget two-fold to combat ongoing harmful and misleading claims made about formaldehyde. This refocus is a direct result of the increased media attention and regulatory action directed at the molecule and its applications, from daily news articles to the impending publication of the updated National Cancer Institute (NCI) manuscript. FCI has built an arsenal of vital scientific information that has informed our key messages for years, derived from the extensive studies done on formaldehyde and FCI's funding of emerging scientific research. With this redistribution of resources, the Council was better able to spread these messages to critical media outlets, regulatory bodies and other interested parties.

With this increase in funds came a change in public relations firms as well. CounterPoint Strategies was hired in late 2008 and brought with it a fresh perspective and a more active communications strategy. This strategy has already brought several successes to the Council, including the launch of the "Formaldehyde Facts" blog, the removal of a misleading video on YouTube, and media training for Council scientific experts as part of a larger comprehensive public relations plan in anticipation of publication of the NCI study. They have also been exposing bias and distortions in the press and have secured corrections and set the record straight at a number of national news outlets.

Secondly, a few words about the National Academy of Sciences (NAS) process -- for another year the NCI study remained stalled with no definitive publication date. Although the study is still outstanding, FCI waged a large-scale on-line grassroots campaign to request that Congress have the NAS review all the data on formaldehyde health effects, including the most recent research and the ongoing work of the NCI. This campaign yielded an impressive 370 letters that were sent to 71 senators and representatives in FCI member districts. In addition to the FCI's efforts, the U.S. Environmental Protection Agency (EPA) announced its intention to commission the NAS for a "comprehensive review of all available scientific data on formaldehyde" in their Advance Notice of Proposed Rulemaking (ANPR) on formaldehyde emissions from pressed wood products in early December. Although there is currently no confirmation, FCI is optimistic about obtaining a NAS review to help unify the conflicting views of experts and government agencies on formaldehyde exposure and its health effects. It is our expectation and hope that President Obama's administration will make this a reality.

Thirdly, the year 2008 also marked another year replete with conservative and responsible fiscal management. FCI succeeded in finishing the year with a surplus of $690,000, including the contingency and reserve funds commenced in prior years. Unlike many of our Wall Street friends, this surplus is one for which the Council and its membership should be very proud. Financial responsibility, proper allocation of member funds, and ensuring value for every dollar are consistent goals of FCI and they will continue to be a primary objective in 2009.

Fourthly, I'd like to make several comments regarding FCI's team of outside advisors. FCI has gone through several changes to assemble an outstanding team of consultants. In an effort to help the Council reach members of Congress and the new administration, Barnes & Thornburg, LLP was brought on board. The firm will help FCI establish key contacts within the new Obama administration and in various regulatory agencies. In 2009, FCI and Barnes & Thornburg will try to bring the most relevant issues before these agencies to ensure that formaldehyde receives a balanced review in all regulatory considerations. A particular emphasis will be EPA's Integrated Risk Information System (IRIS) formaldehyde reassessment. Charlie Grizzle, of The Grizzle Company, remained FCI's lead lobbyist in 2008 and provided invaluable assistance in bringing our most important issues to key decision makers on Capitol Hill. The Grizzle Company will be

instrumental in the development of our 2009 Government Affairs Committee strategy.

Dr. Gail Charnley of HealthRisk Strategies was hired in late 2008 to help FCI advance critical risk assessment science policy issues applicable to formaldehyde, including mode of action and human relevance framework processes. Dr. Charnley will play a vital role in the refinement of FCI positions and strategies for advocating responsible applications of scientific work with government regulators. Dr. Charnley has already been instrumental in advancing FCI's request for the NAS review of formaldehyde data. In addition to this tremendous team of outside consultants, new internal staff talent joined FCI during 2008, but with the organization continually focused on maintaining a low cost profile.

While FCI will undoubtedly face new challenges, we will persevere in our mission to promote the use of sound science, combat de-selection, change the tone of media reports on formaldehyde, and remind industry and the public of this chemical's inherent value and vitality.

With a tremendous team of consultants and staff, FCI looks to 2009 with a renewed sense of purpose. While continuing to explore new and emerging science, communications and advocacy will take a front seat in the Council's strategy to open dialogue with old adversaries and create new alliances. While FCI will undoubtedly face new challenges, we will persevere in our mission to promote the use of sound science, combat de-selection, change the tone of media reports on formaldehyde, and remind industry and the public of this chemical's inherent value and vitality.

As my tenure as FCI chairman comes to an end, I'd like to thank the FCI membership, our Board of Directors, the Executive Director, FCI staff, and advisors for their constant hard work and support. Although the road hasn't always been easy, it was a pleasure to be part of a team with a common purpose. As I pass the torch to a most capable new chairman, John Caamano, I know that there is much remaining to be done to protect formaldehyde. To successfully carry forth the mission of the Council, he will need the support of the Board of Directors and the member companies, and I call on all of you to stand behind him. With member support, along with the continued dedication of FCI staff and consultants, the Council can continue to lead the public discussion about this invaluable chemical.

My thanks to you all for giving me the opportunity to serve our industry.

Executive Director's Report

Betsy Natz

Executive Director

The focus of 2008 was on the Formaldehyde Council, Inc.'s (FCI's) dedication to spreading our core messages through cutting-edge science and new communication vehicles to effectively reach all our key audiences. Throughout the past year, it was again my privilege to work with the leadership of this organization to best represent this industry and the importance of formaldehyde's many uses and applications. The support of the members who serve on FCI's committees and the day-to-day work of our consultants are invaluable, and without their tireless efforts FCI would not be the organization it is today.

To help put into perspective the many activities FCI was involved in during 2008, I have highlighted some of the major events. The impending publication of the updated National Cancer Institute (NCI) manuscript remained a top priority for the Council throughout the year. FCI representatives, including Doctors Gary Marsh, Philip Cole and Robert Golden presented at the May 27 NCI Science Advisory Panel meeting when the draft paper was reviewed. Dr. Gary Marsh, University of Pittsburgh, addressed ongoing significant methodological shortcomings in the draft report for which NCI had failed to adequately account. Dr. Philip Cole, speaking on behalf of an expert epidemiology panel, told the authors that additional analyses are warranted and suggested that an additional five-year follow-up be conducted given the impact of time on the analysis and conclusions. Dr. Robert Golden, ToxLogic, addressed the issue of biological plausibility in his remarks. The Communications Committee developed a comprehensive public relations plan for the release of the NCI manuscript, including a possible commentary authored by FCI's expert epidemiology panel.

A majority of the Council's activities in 2008 centered on gaining acceptance of a National Academy of Sciences (NAS) review of all formaldehyde health effects, including the latest NCI studies. The NAS review will help address the numerous scientific issues pertaining to the assessment of formaldehyde and inform policy makers regarding formaldehyde risk management. FCI organized an online grassroots effort encouraging members to send letters to their U.S. representatives and senators about the need for this review. With the support of FCI members, 370 letters were sent. By October, the Government Affairs Committee, with FCI member involvement, succeeded in garnering both Senate and House support for a NAS review.

The Science and Regulatory Committee succeeded in developing a recommended indoor air level for formaldehyde that is based on conclusive science and reflective of most indoor environments. *A Recommended Indoor Air Value for Formaldehyde: Rationale Based on Exposure and Effects Information,* authored by Dr. Golden, presents evidence-based science to support the recommended level of 0.1 parts per million (ppm). This guidance level and the weight-of-evidence provided in the paper will inform the Council's comments to regulatory agencies as well as the development of communications pieces to further enhance our messages.

FCI stepped up communications efforts in 2008, and with the help of our new public relations firm created "Formaldehyde Facts," FCI's new blog. This blog helps the Council respond to erroneous news stories in real time and serves as a forum for people in the industry to discuss the issues surrounding this molecule. The blog has also provided FCI with a new means of communications, such as posting videos to set the record straight. One of the first successes of the blog was the removal of a misleading YouTube video prompted by comments made on the Formaldehyde Facts blog.

The Product Stewardship Committee continues to provide comments to organizations such as the U.S. Green Building Council's (USGBC's) Leadership in Energy & Environmental Design (LEED) and American Society of Heating, Refrigerating and Air-Conditioning Engineers' (ASHRAE's) proposed green building rating systems. The comments highlight the importance of using formaldehyde responsibly while warning against the trend of de-selection.

FCI continued to provide essential facts and the latest formaldehyde science to best inform decisions made at the state level. Accomplishments in 2008 include the defeat of the Safer Alternatives to Toxic Chemicals bill in Massachusetts, commenting on the Texas Commission on Environmental Quality's (TCEQ's) effects screening levels(ESLs), and on California's Office of Environmental Health Hazard Assessment's (OEHHA's) proposed reference exposure levels (RELs).

Membership and Finance Committee Report

FCI continued to work closely in 2008 on international issues with FormaCare. On behalf of the organization I would like to thank Detlev Clajus for his help throughout the years and wish him luck as he moves on from his post at FormaCare back to Evonik Industries. We will continue to coordinate our international efforts in 2009 with Reinhard Strupp, Sector Group Manager of FormaCare.

2008 presented its share of challenges and there is no doubt that 2009 will introduce a host of new obstacles. In preparation for the future, FCI has assembled a team of exemplary staff, consultants and experts to help guide us through the tasks we need to undertake to protect this industry. The membership's breadth of industry knowledge is one of the most important assets of the Council and will continue to be an essential element in FCI's success in 2009.

Jan W. Spin

Membership and Finance Committee Chairman

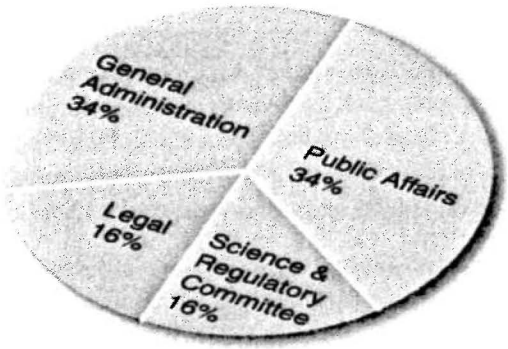
The success and very existence of the Formaldehyde Council, Inc. (FCI) rest on our ability to recruit and retain members through our commitment to support the formaldehyde industry with common objectives and goals.

FCI's achievements and ability to provide a voice for the industry attracted a new member in 2008. Agrolinz Melamine International GmbH (AMI) of Linz, Austria, joined mid-year, bringing our total membership to 29. AMI upgrades natural gas into high-value agricultural and industrial raw materials and is a world leader in melamine and plant nutrients. FCI is constantly looking to expand its membership and will continue these efforts in 2009.

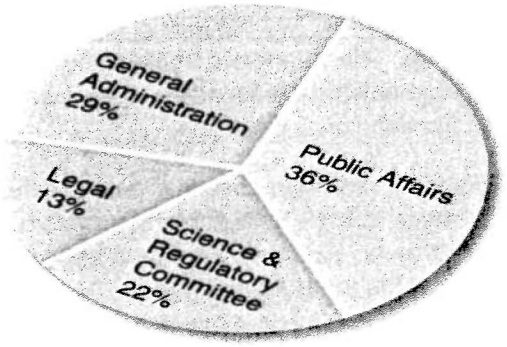
On the financial side, FCI spent $1.6 million in 2008, compared with $2.5 million in 2007. The reduction in expenses is due to the completion of several scientific studies in 2007 and the shifting of our focus to advocacy. Of the $1.6 million, 16 percent went to science and regulatory projects, 34 percent went to public affairs, 16 percent to legal, and 34 percent to general administration. FCI expanded its advocacy efforts in 2008 by hiring a new public relations firm while retaining our current government affairs consultants. 2008 marked an outstanding year of fiscal management and responsibility as FCI finished the year with the largest surplus since its formation in 2004. Looking to 2009, the Council will continue to allocate more funds toward advocacy to prepare for several regulatory measures such as the U.S. Environmental Protection Agency's (EPA) Integrated Risk Information System (IRIS), the National Toxicology Program's (NTP) 12th Report on Carcinogens (RoC), and the International Agency for Research on Cancer's (IARC) monograph as well as the continuation of state activity and international activity monitoring and the redesign of the FCI website.

Budget Breakdown By Activity
(in millions)

2008



2009



Science and Regulatory Committee Report

Mark Gruenwald

Science and Regulatory Committee Chairman

The Formaldehyde Council, Inc. (FCI) continues to develop and expand its cache of scientific research to enhance knowledge of formaldehyde. 2008 proved to be a successful year in the promotion of FCI supported science with the publication of two papers, a poster presentation at the Genetic Toxicology Association, and submission of many sets of detailed comments to state and federal regulatory agencies. The Science and Regulatory Committee (SRC) continued to invest in studies that will strengthen the mode-of-action case for advocating the non-linear cancer risk assessment approach with nasal cancer with genomics data and other related data and developing an evidence-based indoor air value for formaldehyde. Development of these studies will add validity to the non-linear position and aid FCI in advocacy efforts.

The SRC focused considerable attention on reaching a recommended indoor air level for formaldehyde that was both evidence-based and reflective of most indoor environments. A paper, authored by Dr. Robert Golden of ToxLogic, outlined the recommended level of 0.1 parts per million (ppm) and the basis for an evidence-based indoor air guidance value. Although this paper has not been submitted for publication, it will help guide FCI's comments to regulatory agencies and science communications messaging by providing the best scientific basis for a sound indoor air formaldehyde level that is not rooted in the precautionary principle yet is protective of sensory irritation effects.

Two FCI-funded papers were published in respected scientific journals in 2008. *Is inhalation exposure to formaldehyde a biologically plausible cause of lymphohematopoietic malignancies?*, authored by Dr. David Pyatt, Dr. Ethan Natelson and Dr. Robert Golden, was published in Regulatory Toxicology and Pharmacology. The second published FCI-supported study, *Genomic Signatures and Dose-Dependent Transitions in Nasal Epithelial Responses to Inhaled Formaldehyde in the Rat*, was authored by Dr. Melvin E. Andersen et al. and published in Toxicological Sciences. A commentary praising Dr. Andersen's study titled, *Gene Expression, Dose-Response, and Phenotypic Anchoring: Applications for Toxicogenomics in Risk Assessment* and written by George Daston of Procter & Gamble, was published soon after in the same journal. Another paper being prepared for publication will be authored by Dr. James Wedner and will address whether there is an association between asthma and formaldehyde, either as a cause or to exacerbate symptoms. This key issue received considerable attention as a result of the publicity surrounding temporary housing units supplied by the Federal Emergency Management Agency (FEMA) and used by the victims of Hurricane Katrina.

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Another milestone for the SRC was the presentation by Barbara Parsons, Division of Genetic and Reproductive Toxicology, National Center for Toxicological Research (NCTR), at the Genetic Toxicology Association meeting. This poster presentation described how a key mutational event (i.e. p53) did not occur in nasal tissues following 90 days of exposure to formaldehyde. From the same study, the NCTR scientists have now also determined that another mutation (Kras) also did not occur. These data add to the overall understanding of how formaldehyde causes nasal tumors in rodents and further show that unless overt cytotoxicity and regenerative proliferation occurs, no tumors will develop.

A Method to Integrate Benchmark Dose Estimates with Genomic Data to Assess the Functional Effects of Chemical Exposure, written by Dr. Rusty Thomas and funded by FCI in 2007, was nominated for the Society of Toxicology (SOT) Board of Publications Best Paper Award for 2009. Although the paper was not chosen for the top award, it will be among the papers listed as Honorable Mentions at the 2009 SOT Annual Meeting.

A new panel, Advancing Risk Assessment Science & Policy (ARASP), was formed at the American Chemistry Council, and FCI is one of its founding members. ARASP is composed of chemical and product specific groups interested in advocating the use of the best available science in risk assessments. ARASP plans on challenging the National Center for Environmental Assessment's (NCEA) risk assessment barriers, including a number of the conclusions of the Hopkins Low Dose Extrapolation Report. This activity will benefit FCI's position promoting the use of advanced scientific approaches in lieu of defaults in risk assessments.

FCI continued to meet with key staff at regulatory agencies to present the latest scientific data on formaldehyde. Both FCI representatives and scientists attended these meetings in order to present a scientifically balanced view of the issues. It is hoped that these continuing efforts will help to feed into vital assessments, such as the Integrated Risk Information System (IRIS) that is currently underway for formaldehyde.

FCI science expertise also played an integral role in the development of comments addressing the U.S. Environmental Protection Agency's (EPA) re-registration (RED) of formaldehyde-emitting antimicrobials used in paints prepared by the Office of Prevention, Pesticides and Toxic Substances (OPPTS). The RED process consists of the evaluation of the human health and ecological effects of pesticides and was developed under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). FCI and EPA scientists met to discuss the RED and the issues involved in establishing regulatory and/or guidance levels for formaldehyde that falls into the normal range of formaldehyde levels measured in human breath. This issue continues to be explored as it offers a common sense approach for challenging the biological plausibility of unrealistically low regulatory levels for cancer or noncancer effects.

The pending publication of the updated National Cancer Institute (NCI) studies remained a top priority for the SRC. FCI made every effort to challenge the scientific basis for the conclusions of the study on blood cancers (i.e. leukemia and related diseases) including attending the Science Advisory Panel meeting in Virginia. Doctors Gary Marsh (University of Pittsburgh), James Collins (Dow Chemical Company), Robert Golden (ToxLogic), and Philip Cole (University of Alabama) were all in attendance to brief the Panel. Dr. Marsh presented on the methodology used in the draft NCI cohort study, Dr. Golden talked about biological plausibility, and Dr. Cole provided an overview of the FCI's Blue Ribbon Panel critique of the draft NCI cohort study. The blood cancer study has not yet been published and to date, the study on solid tumors has not appeared in draft form.

FCI continued its campaign to request a National Academy of Sciences (NAS) review of formaldehyde including data on exposure, and potential health effects, as well as the most recent research and the ongoing work of the NCI. It is unknown at this time if such a review will take place before or after the release by EPA of the long delayed IRIS document on formaldehyde. Either way, a NAS review will be necessary and critical in order to address the numerous scientific issues pertaining to the assessment of formaldehyde-associated adverse effects, including the endpoint of concern, if any, for cancer risk assessment and an evidence based assessment of the formaldehyde levels associated with sensory irritant and other noncancer effects. This will be essential since the IRIS document will be the basis for resolving the current public confusion on formaldehyde caused by different regulations, limits and exposure levels.

In 2008 the EPA announced its intention to investigate the potential for adverse health effects related to formaldehyde emissions from pressed wood products. This investigation was prompted by a Sierra Club petition calling for the nationalization of the California Air Resources Board (CARB) regulation for formaldehyde emissions from composite wood products under section 6(a) of the Toxic Substances Control Act (TSCA). FCI responded to the original petition by submitting comments to the EPA and citing a multitude of reasons why there is no unreasonable risk of injury to human health or the environment from formaldehyde emissions from wood products that warrants action under section 6(a) of the TSCA. In response to EPA's December 2008 advance notice of proposed rulemaking on formaldehyde emissions from pressed wood products, FCI also coordinated and developed comments for presentation at numerous public meetings held around the country. FCI will also provide comprehensive written comments.

Government Affairs Committee Report

The work of the Government Affairs Committee (GAC) has become critical to the Formaldehyde Council, Inc.'s (FCI) strategy. Faced with numerous legislative and regulatory challenges in 2008, the GAC stepped forward to help educate key decision makers and provide a balanced and objective view of the molecule.

The GAC's focus remained largely on the release and publication of the updated National Cancer Institute (NCI) studies. In preparation for the studies' release the GAC launched a grassroots effort to secure a review by the prestigious National Academy of Sciences (NAS) of formaldehyde's health effects. The GAC, with FCI member involvement, got both Senate and House support for a NAS review.

If it moves forward, the review will help guide the development of realistic regulatory safety measures for formaldehyde as current regulations differ and only serve to confuse the public. A NAS review would also help streamline the existing scientific data on formaldehyde, putting to rest conflicting study conclusions. All of these results have an impact on the Environmental Protection Agency's (EPA's) update of its Integrated Risk Information System (IRIS) toxicological assessment on formaldehyde and other assessments by the National Toxicology Program (NTP) and International Agency for Research on Cancer (IARC).

Federal Developments 2008

In 2008, FCI contended with criticism of both industry and government for perceived interference in public health issues and assessments. For example, a Government Accountability Office (GAO) report released in March -- *Low Productivity and New Interagency Review Process Limit the Usefulness and Credibility of EPA's Integrated Risk Information System* -- alleged that several of the toxicological assessments performed under EPA's IRIS system were delayed by industry involvement and that the overall process lacks transparency. Formaldehyde was specifically mentioned in the report as one of the assessments delayed because of interference by "congressional committees and individual members." FCI sent comments to the author of the report, citing that both the evolving and emerging science surrounding formaldehyde are the true reasons behind the delay of the toxicological assessment. Another point that FCI's comments highlighted is the sheer number of conflicting uses and applications of the scientific data of formaldehyde at both the state and federal level, which makes the accuracy of EPA's IRIS assessment even more critical.

The problems associated with the Federal Emergency Management Agency's (FEMA's) Hurricane Katrina temporary housing units were the topic of many hearings on Capitol Hill in 2008. FCI continued to attend and monitor these hearings. In an effort to provide guidelines and structure for health standards for disaster housing, FEMA released a draft National Disaster Housing Strategy Plan. Although FCI supports FEMA's effort to develop a strategy for disaster housing, we did take issue with the proposed indoor air level of 0.016 parts per million (ppm) for formaldehyde in temporary housing units. FCI responded with comments outlining the vast array of scientific literature supporting an indoor air level of 0.1 ppm of formaldehyde. While individuals can differ in their sensitivity to both the odor and eye irritation effects of formaldehyde, 1.0 ppm is the level of formaldehyde that has generally been recognized as a threshold for sensory irritation. When incorporating an "adjustment factor", FCI advocates 0.1 ppm as an indoor air level for formaldehyde. This level is 10 times less than the 1.0 ppm level.

The Centers for Disease Control and Prevention (CDC) weighed in heavily on the FEMA issue, conducting studies of formaldehyde levels in temporary housing units. One study noted that the levels tested higher in the temporary units than typical park models and mobile homes. FCI provided comments on this report, asserting that several statements in the report were erroneous. Most notably was the assertion that there is "no safe level for formaldehyde." The vast scientific literature on formaldehyde offers a very different perspective, with data showing there are safe levels of exposure to formaldehyde. The CDC report also failed to note that common activities, such as cooking and smoking, contribute to heightened levels of formaldehyde. The CDC stated that they would test the temporary housing units for 33 other substances and to our knowledge tests were not performed for these other possible factors, such as mold, that could trigger health effects experienced by those living in the units. Later in the year, CDC released a draft monograph titled "Safe and Healthy Manufactured Structures." This monograph was written to provide guidelines to protect the health and safety of Americans living in manufactured structures. FCI was

invited to attend a meeting to provide insight and comment on the monograph. FCI also submitted written comments and recommended that the CDC better define its audience and an objective.

FCI met with a variety of U.S. regulatory agencies to provide a balanced and up-to-date scientific briefing about formaldehyde. While answering pertinent questions, emerging science was discussed to best inform this vital audience of new developments. While the IRIS schedule continues to change, these meetings will help inform the IRIS review process as these agencies will be offered opportunities to provide input and inform the interagency review, and the IRIS development will include new studies that otherwise would not have been included in the assessment.

Other assessments on the horizon include NTP's 12th Report on Carcinogens (RoC) and IARC's monograph "A Review of Human Carcinogens." In October FCI sent a letter to NTP to encourage a delay in the evaluation of formaldehyde for the 12th RoC to allow time for the NCI update to be completed. NTP has agreed to review formaldehyde as one of the last of all eleven chemicals in the 12th RoC and FCI will continue to work with NTP to ensure that it has the most relevant information to properly conduct its evaluation. FCI will recommend an observer to IARC and provide a list of key studies to include in the research.

In March, U.S. Senators Bob Casey, Sherrod Brown and Mary Landrieu introduced an amendment to the Consumer Product Safety Commission (CPSC) reform bill that would require the CPSC to regulate and test formaldehyde in textiles within the next two years. The amendment requires the CPSC to complete an investigation of textile-based products to examine potential health and safety hazards while establishing protocols for testing textile-based consumer products for formaldehyde. FCI will monitor this activity and offer expertise as necessary.

State Developments in 2008

- **California**: The state of California provided various challenges, beginning with the Office of Environmental Health Hazard Assessment (OEHHA) draft document "Air Toxics Hot Spots Program Technical Support Document for the Derivation of Noncancer Reference Exposure Levels." FCI provided comments on the acute and chronic Reference Exposure Levels (RELs) for formaldehyde and the updated health protective levels. FCI took specific steps to address the application of the uncertainty risk factor of 10 to the proposed RELs. FCI proposed that an uncertainty factor of 1 is supported by a variety of expert reviews and the endogenous nature of formaldehyde in relation to human metabolism. At the meeting of the Scientific Review Panel on Dec. 5, 2008, the RELs and their supporting documentation were approved with an acute level of 55 ug/m3, an 8-hour level of 9 ug/m3 and a chronic level of 9 ug/m3.

  On April 18, 2008 the California Office of Administrative Law approved the Airborne Toxic Control Measure (ATCM) by the California Air Resources Board (CARB) to reduce formaldehyde emissions from composite wood products and finished goods that contain composite wood products that are sold, offered for sale, supplied, used, or manufactured for sale in the state. The composite wood products covered by this regulation are hardwood plywood, particleboard, and medium density fiberboard. Regulation will occur in two phases, with the first phase of emission standards effective on January 1, 2009. FCI submitted comments on this measure and noted the lack of scientific support for the proposed rule. Specifically, the rationale for the measure is based upon a cancer risk assessment of formaldehyde that OEHHA performed in 1992 that essentially said there is "no safe threshold for formaldehyde." Their cancer risk assessment does not rely on what the US EPA calls "the best available peer-reviewed science at this time." OEHHA did not even acknowledge the work upon which the EPA, Health Canada, the World Health Organization and Australia rely for their risk assessments of formaldehyde. The ATCM will reverberate throughout the industry and, despite its questionable public health benefits, will likely prove to be a costly piece of legislation.

  Later in the year, a group called Environment California Research & Policy Center released a report alleging that baby nursery cribs, changing tables and dressers can emit formaldehyde at levels linked with increased risk of childhood allergies and asthma. This report, *Toxic Baby Furniture: The Latest Case for Making Products Safe from the Start*, led California Attorney General Jerry Brown to file a lawsuit against five baby furniture manufacturers stating that they knowingly sold products that emit formaldehyde gas at levels that exceed California requirements

under Proposition 65 without alerting consumers with warning labels. FCI worked with the Juvenile Products Manufacturers Association on a response to the suit.

The last major development in California was the passage of the Green Chemistry Initiative in the fall of 2008. This Initiative is comprised of two pieces of legislation: AB 1879 and SB 509. AB 1879 provides statutory authority for the Department of Toxic Substances Control (DTSC) to adopt regulations for identifying and prioritizing chemicals of concern in consumer products and for evaluating safer alternatives to toxic chemicals through a science-based approach. SB 509 establishes an online Toxics Information Clearinghouse that will provide access to information about the toxicity and hazard traits of thousands of chemicals used in California today. Although the list of chemicals has not yet been established, FCI will track the progress of the Initiative and will provide key information to ensure the best science is used to form the evaluation.

- **Texas**: The Texas Commission on Environmental Quality (TCEQ) released a revised draft of their Effects Screening Levels (ESLs) for public review and comment. FCI requested an extension of the comment period to include emerging research such as the 21-day genomics study and the sensitivity analysis, both conducted by the Hamner Institutes of Health Sciences. Despite FCI's best efforts, TCEQ decided to finalize the Development Support Document (DSD) without further FCI comment. Although TCEQ felt that the current data set was robust and provided all the information necessary to complete the DSD, they noted a need for FCI to remain involved as new scientific data emerges and the DSD is updated.
- **Massachusetts**: FCI continued to battle the enactment of "An Act for a Healthy Massachusetts: Safer Alternatives to Toxic Chemicals." Working with a coalition of organizations in Massachusetts, FCI participated in the united front and produced letters urging the House of Representatives to oppose the bill. The Coalition argued the bill would place an undue burden on Massachusetts businesses on a wide-scale level -- from chemical companies to biotech companies -- and therefore place Massachusetts at a disadvantage with out-of-state manufacturers. While the bill was defeated in 2008, FCI expects it to be re-introduced in 2009.

International Developments in 2008

In Europe, there was significant activity surrounding chemical assessments and reviews.

In Brussels, ChemSec, a coalition of European environmental, labor and consumer groups, released a list of up to 300 chemicals it has classified as "Substitute It Now," or SIN, substances that the coalition argues should no longer be used to make consumer products. The SIN list was put together to spur the development of safer chemicals and help companies that make consumer products identify those that may eventually be targeted for authorization under the Registration, Evaluation and Authorization of Chemicals (REACH) program. The European Chemical Industry Council (CEFIC) stated in a press release that the process for nominating substances of very high concern to the Candidate List for authorization under REACH is well defined; it argues that any list published outside this process might be confusing and not helpful in establishing REACH as the centerpiece of the chemicals legislation.

France added formaldehyde to its Registry of Intentions, formally nominating formaldehyde as a substance of high concern. The Registry of Intentions serves as a precursor to developing an Annex XV dossier to identify Substances of Very High Concern (SVHC), propose harmonized classification and labeling, or propose restrictions. In this instance, France is considering a proposal for harmonized classification and labeling system of formaldehyde. The dossier on formaldehyde was originally scheduled to be completed by the end of 2008 but has now been delayed until mid-to-late 2009.

FCI also began the process of preparing for the upcoming International Agency for Research on Cancer (IARC) assessment for monograph 100: A Review of Human Carcinogens. The IARC working group is expected to consider formaldehyde in the meeting scheduled in Lyon, France, in October 2009 for "Chemical agents and related occupations." To prepare for the monograph, FCI has pulled together a subcommittee of the Science and Regulatory Committee to compile a list of recommended peer-review science to submit during the call for data and provide recommendations for an observer and technical expert.

Communications Committee Report

Gail Smith

Communications Committee Chairperson

The media stayed focused on formaldehyde in 2008, making media outreach and accountability a key priority for the Communications Committee during the year. To combat media misperceptions and inaccuracies and promote the best and most current science available, the Formaldehyde Council, Inc. (FCI) adopted a more active communications strategy with help from a new public relations firm hired during the second half of the year.

While FCI executed a more engaged stance, the overall communications goals remained the same:

- Help inform the public's perception of formaldehyde by actively promoting the facts as well as the results of key scientific studies from FCI's Science and Regulatory Committee's research through education and proactive outreach
- Correct inaccuracies about formaldehyde often found in media reports and blogs
- Promote the responsible and beneficial uses of formaldehyde through outlets such as brochures, website, blogs and speaking engagements

Strategic communications were not only used with the media, but also with federal regulators and non-governmental organizations. All fronts presented a new set of challenges while other issues persisted and will likely continue to require perseverance. Some of those issues included allergic reaction in clothing, carcinogenicity, misleading trade claims, and encroaching state regulatory schemes.

Formaldehyde remained in the spotlight largely due to the Federal Emergency Management Agency's (FEMA) ongoing emergency disaster housing issue. While the temporary housing units provided to Hurricane Katrina victims continued to get coverage, the Iowa flood victims story added another layer of media attention. FCI actively addressed the persistent misrepresentation of formaldehyde testing results. This was done through the application of our new "media accountability" strategy whereby we confront news outlets publicly and enforce their own standards of balance, objectivity, accuracy and sourcing. We successfully exposed a number of such stories in the Iowa media market and secured clarifications or retractions.

A significant milestone this year was the launch of the "Formaldehyde Facts" blog. This social media tool allows us not only to make a visible and confident public stand but also to plug into the wide variety of independent, online arbiters who then weigh in on our issues and underscore our assertions. The blog was developed to help dispel common misconceptions about formaldehyde and reply to inaccuracies in news reports in real time. This useful tool has been linked to other blogs and has helped to open a dialogue with those looking for information on formaldehyde. The blog has been an important element in FCI's new communications strategy and is a formidable tool in the media landscape.

A good example of how FCI responded forcefully with this new approach was when we confronted the claim made against Victoria's Secret. Several class action lawsuits were filed against the lingerie manufacturer alleging that certain makes of bras caused an allergic reaction and scarring as a result of formaldehyde used in the products. FCI responded specifically to "Good Morning America," one of the first major outlets to run the story, with a letter noting the many inaccuracies contained in the story, including its one-sided nature. FCI's letter was linked on "Good Morning America's" website to the original story. In addition, FCI compiled a video to rebut "Good Morning America's" news report, highlighting inaccuracies and providing vital information that was not included in the original report.

Another example is FCI's considerable success in responding to a misleading video posted on YouTube. The video contained several egregious errors and distorted statements about formaldehyde. FCI posted the video on the "Formaldehyde Facts" blog with a hard-hitting critique and within 24 hours the video was pulled from YouTube. The removal of the video was a reflection of the blog's influence and increased importance in FCI's media and communications responses.

During 2008, the committee continued to refine FCI's communications approach to the pending publication of Part I of the National Cancer Institute (NCI) formaldehyde update. This included providing media training to key third-party experts to help ensure that facts and scientific analysis are delivered effectively in potential interview situations. We've maintained our

focus on the publication of this NCI paper because we believe its effects will be felt throughout the industry and could potentially affect the outcomes of several important upcoming scientific reviews of formaldehyde, including the International Agency for Research on Cancer and the National Toxicology Program's 12th Report on Carcinogens.

Member communications also remained a priority for the Communications Committee. FCI staff regularly published the FCI Updates, which covered issues FCI was facing and the relevant activities surrounding these issues. FCI News Digests, a compilation of key news stories, were published frequently to keep members updated on how formaldehyde was being portrayed in the media. Included in the digests was a brief synopsis of FCI's actions in response.

The Communications and Product Stewardship Committees worked together to produce a brochure on the "Safety and Benefits of Formaldehyde" for use with members, customers, employees, trade shows and others. This insert can be used with FCI's other brochures to explain the basics of formaldehyde, including health effects. In addition, "Life in a World Without Formaldehyde" was another useful publication developed in 2008. Highlighting the breadth of uses and benefits of the molecule, this brochure was used in meetings with regulators at the TAPPI symposium.

Looking ahead to 2009, FCI will continue to hold media accountable for balanced reporting on formaldehyde and will work to position the Council as the reliable source for information about formaldehyde. To support these efforts, the Council's website will be updated with a new user-friendly look and will offer access to current, relevant information on formaldehyde and related topics. The "Formaldehyde Facts" blog will continue to serve as a valuable forum to address, in real time, erroneous news reports, blogs and allegations about formaldehyde. The Communications Committee believes that these activities, coupled with the timely FCI member communications currently in place, will help focus attention on the sound science about formaldehyde rather than sound bites.

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Product Stewardship Committee Report

The Product Stewardship Committee (PSC) continued to make significant contributions to the formaldehyde community in 2008. The committee shifted its focus from indoor air modeling activities, such as the CONTAM projects of years past, to a partnership with the Formaldehyde Council, Inc.'s (FCI) Communications Committee. This coordination of the committees' efforts has provided PSC members with a direct outlet in which to voice their most pertinent concerns and have those messages conveyed to the consumer.

The successful collaboration between the two committees is evidenced by the communications pieces developed in 2008, "Life in a World Without Formaldehyde" brochure and the "Safety and Benefits of Formaldehyde" insert. "Life in a World Without Formaldehyde" was designed to highlight the many uses and benefits of formaldehyde while the insert was created with the consumer in mind to provide basic facts about formaldehyde. All of FCI's collateral materials are designed to complement each other and can be used for consumer and employee outreach.

In addition to the collaboration with the Communications Committee, the PSC monitored all developments within certification systems such as Leadership in Energy and Environmental Design (LEED), American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc (ASHRAE) and the Collaborative for High Performance Schools (CHPS). The PSC continues to follow these organizations to protect against formaldehyde de-selection.

FCI submitted comments to LEED on its draft 2009 Guidelines on commercial interiors, core and shell, existing buildings, new construction and schools. Comments specifically addressed the persistent guideline of "no added urea-formaldehyde resins" for composite wood and agrifiber products. Other comments touched on the indoor air quality (IAQ) provisions of 50 parts per billion (ppb) after construction and prior to occupancy. FCI noted the consistent bias toward de-selection of formaldehyde-based resins in wood products instead of properly developing a performance-based standard by limiting emissions from raw material. The IAQ provisions were addressed as not supported by state-of-the-art science. Formaldehyde is naturally present in exhaled human breath at levels ranging from 1.2 to 72.7 ppb.

Also in 2008, a task group in one of the American Society for Testing and Materials' (ASTM) technical subcommittees (E06 – the Performance of Buildings) is working to develop a new ASTM standard that defines "environmentally preferred products" in materials used in building. It is primarily based on elements of life cycle thinking and has included a section on adhesives based on the Canadian Environmental Choice Program, which sets highly specific and restrictive specifications to achieve its EcoLogo™ designation. One of the requirements is that products "not be formulated or manufactured with formaldehyde." The E06 subcommittee reviewed all D14 (Adhesives) standards and concluded the only environmentally preferable adhesive is casein. A draft standard has been submitted for comments and revisions will likely be complete by April 2009. FCI is getting more involved in this process and will provide information to protect against unnecessary standards.

Formaldehyde is naturally present in exhaled human breath at levels ranging from 1.2 to 72.7 ppb.

FCI Member Companies During 2008

Tier I

Arclin
Celanese Corporation
E.I. DuPont de Nemours & Co.
Georgia-Pacific Chemicals LLC
Hexion Specialty Chemicals, Inc.
Methanex Corporation
Southern Chemical Corporation

Trade Associations

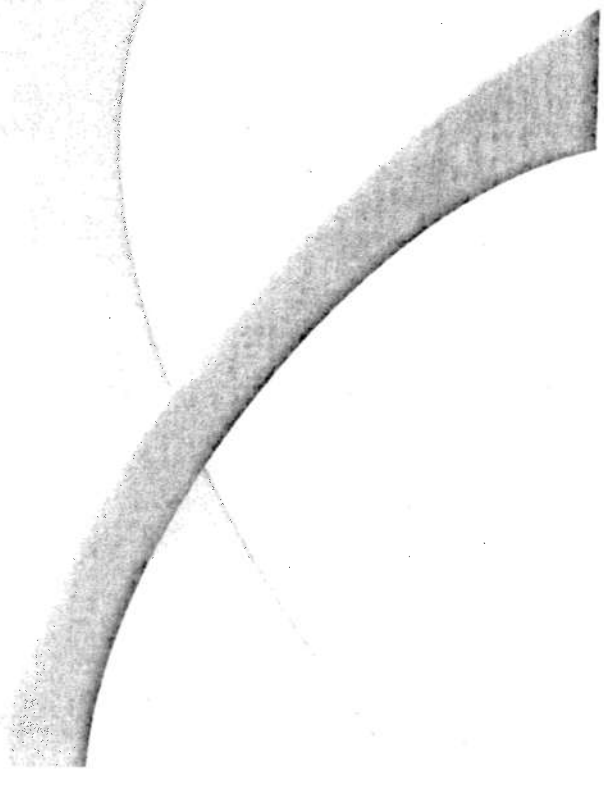
American Forest & Paper Association
Composite Panel Association
Kitchen Cabinet Manufacturers Association
National Funeral Directors Association

Tier II

CertainTeed Corporation
Cytec Industries Inc.
Knauf Insulation
Owens Corning

Tier III

Agrolinz Melamine International
Ashland Inc.
Atlantic Methanol Company
D.B. Western, Inc.
Dow Chemical Company
DSM Melamine Americas, Inc.
Formica Corporation
Guardian Industries Corp.
Panolam Industries International, Inc.
Plastics Engineering Company
Troy Corporation
Unilin
West Fraser Mills Ltd.



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Kitchen Cabinet Manufacturers Association

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Composite Panel Association

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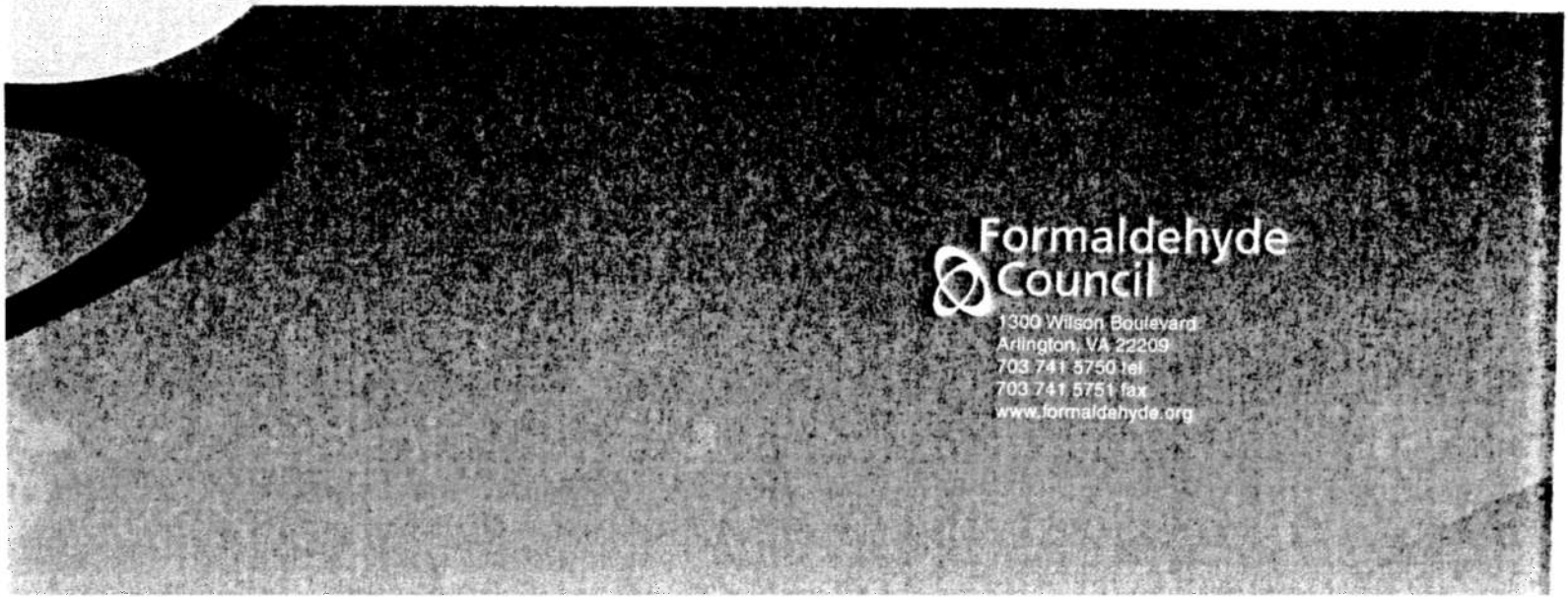
Program Coordinator

Notes

Formaldehyde

The new logo introduced for 2009 is an abstract shape, representing the four components of formaldehyde: carbon, oxygen and two hydrogen molecules.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